

REMARKS

In the Office Action of March 30, 2011, claims 1-6, 8-15, and 17-24 stand rejected. Claims 1, 8, 15, 17, 22, and 23 have been amended. Claim 2 has been canceled. The amended claims find support throughout the Specification (as translated), such on page 3, second to last paragraph, and in the accompanying figures. It is submitted that no new matter has been introduced by the newly added claims.

The present additions and cancellations are made without prejudice or disclaimer to the subject matter of the claims as originally filed. Furthermore, Applicant does not acquiesce or otherwise concede the correctness of the rejections to the original or previously presented claims. Accordingly, Applicant hereby reserves the right to pursue the subject matter of the claims as previously presented or as originally filed in the Subject Application in related applications that may be currently on file or filed at a later date. Moreover, Applicant hereby reserves the right to submit in such related applications arguments made in connection with the Subject Application.

A. Claim Objections

Claims 8, 10, and 22 are objected to for being dependent on a canceled claim. Claims 8 and 22 have been amended and claims 8, 10, and 22 are now believed to be in proper form.

Accordingly, withdrawal of the objection to these claims is respectfully requested.

B. Rejection of Claims 1-6, 8-10, 13-15, 17-19, and 21-24 under 35 U.S.C. § 103(a)

Claims 1-6, 8-10, 13-15, 17-19, and 21-24 stand rejected under 35 USC § 103(a) as being obvious over U.S. Patent No. 4,382,552 to Lubsen et al. ("Lubsen") in view of U.S. Patent No. 6,062,493 to Abplanalp et al. ("Abplanalp"). Claim 2 has been canceled. This rejection is respectfully traversed with respect to pending claims 1, 3-6, 8-10, 13-15, 17-19, and 21-24.

Claim 1 recites a spray nozzle for spraying a liquid into the atmosphere, comprising a secondary jet connected to means for supplying the liquid, and including means for effecting a first fractionation of the liquid and an expansion chamber in which the liquid that has been submitted to the first fractionation is introduced; a principal jet connected to means for generating gaseous flow, including means for effecting a second fractionation of the liquid and an outlet orifice to the atmosphere in which fluid which has been submitted to the second fractionation is introduced; and means for connecting the secondary jet to the principal jet, by connecting the expansion chamber and the means for effecting the second fractionation of the liquid, and configured to create a mixed gas-and-liquid fluid. Claim 1 has been amended to recite that the secondary jet is in the form of a cylinder, the central portion of which is occupied by the principal jet, which also has a cylindrical figuration, the annular cross-sectional space created thereby forming the expansion chamber such that a wall defining a cylindrical conduit appertaining to the principal jet is at one and the same time a separating partition between the principal jet and the expansion chamber. Claims 15 and 23 recite similar limitations.

Claim 17 is directed to a method of spraying a liquid into an atmosphere and recites limitations similar to those of claim 1, including effecting a first and second fractionation of a liquid. Claim 17 also recites the application of a gas under pressure that creates a mixed gas-and-liquid and has been amended in a manner similar to claims 1, 15, and 23.

Lubsen teaches a liquid applicator for dispensing a chemical liquid in dilute aqueous form. The device of Lubsen includes a first Venturi 26 in which water circulates and which forms a first stage aspirator allowing a concentrate stored in a first container 8 to be mixed with the water in the expansion chamber 27, forming therefore a premix. The premix is then stored in a second container 9. Lubsen further teaches a second Venturi 44 in which water circulates and which forms a second stage aspirator allowing the premix stored in the second container 9 to be mixed with the water in the expansion chamber 45, forming therefore the dilute ready to be distributed through a nozzle, such as a garden hose.

The Office asserts Lubsen teaches all aspects of claims 1 and 15, but fails to teach a liquid distribution system that employs gas under pressure. The Office cites Abplanalp as teaching this aspect and submits that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the nozzle of Lubsen with the gas under pressure taught by Abplanalp because the Office asserts that switching out one fluid for another is known in the art. Applicant respectfully disagrees, but has amended the claims to more particularly recite the configuration of the nozzle and the relationship between the secondary jet, the principal jet, and the expansion chamber. In view of this amendment, it is respectfully submitted that the cited prior art do not render the subject claims obvious.

To determine the obviousness of a claim, the Office must make "a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art." *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis added). Thus, "obviousness requires a suggestion of all limitations in a claim." *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (*citing In re Royka*, 490 F.2d 981, 985 (CCPA 1974)). Furthermore, Applicant submits that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. See MPEP §2141.02(VI).

The claims of the present invention now recite that the secondary jet is in the form of a cylinder, the central portion of which is occupied by the principal jet, which

also has a cylindrical figuration, the annular cross-sectional space created thereby forming the expansion chamber such that a wall defining a cylindrical conduit appertaining to the principal jet is at one and the same time a separating partition between the principal jet and the expansion chamber. The present inventors have found that the nozzle configuration recited in the claims is particularly advantageous for pulverizing a large volume of liquid into fine droplets – in the order of between 2 μm and 20 μm diameter – that are dispersed in a homogeneous suspension of gas-and-liquid in all of the surrounding space of a room for treatment without condensation (Specification, page 2, last paragraph)

Lubsen is clearly different from the recitations of independent claims 1, 15, 17, and 23. Lubsen does not disclose an apparatus comprising a secondary jet in the form of a cylinder, the central portion of which is occupied by a principal jet, which also has a cylindrical figuration, the annular cross-sectional space created thereby forming the expansion chamber such that a wall defining a cylindrical conduit appertaining to the principal jet is at one and the same time a separating partition between the principal jet and the expansion chamber, as recited in the claims of the Subject Application. In this configuration, liquid from the first fractionation is mixed with the gas creating therefore a mixed gas-and-liquid which terminates in a low pressure area of an outlet orifice such that a large volume of liquid is pulverized into fine droplets that permit their dispersion in a homogeneous suspension in a surrounding space as a "dry mist" into contact with a surface in an extremely thin continuous film. (See, translated Specification, pp 2-3). As provided in the Specification, the nesting of the principal jet within the secondary jet, with the annular cross-sectional space created thereby forming the expansion chamber such that a wall defining a cylindrical conduit appertaining to the principal jet is at one and the same time a separating partition between the principal jet and the expansion chamber is a configuration neither taught nor suggested by Lubsen. There is no suggestion or motivation in Lubsen to configure a nozzle in this arrangement that results in pulverizing a volume of liquid as a mixed gas-and-liquid fluid of fine droplets. Indeed, there is no need for Lubsen to pulverize a large volume of liquid into fine droplets as is an objective of the Subject Application.

Lubsen is directed to premixing and diluting liquid solutions for lawn care applications and is not directed to nozzle configurations that promote fineness of the droplets in the spray.

One of ordinary skill in the art would not combine the teachings of Abplanalp with Lubsen to render obvious independent claims 1, 3-6, 8-10, 13-15, 17-19, and 21-24. In this regard, there is clearly no motivation to modify the liquid applicator employed by Lubsen to the a mixed gas-and-liquid composition, such as disclosed in Abplanalp, to arrive at the subject claims. Indeed, taken together, the combination of Lubsen and Abplanalp neither teach nor suggest the configuration recited in the subject claims to address problems of pulverizing liquid solutions into fine homogeneous droplets. Indeed, the Office only cites Abplanalp for teaching the use of gas under pressure, but does not overcome the shortcomings of Lubsen. Accordingly, the teachings of Lubsen and Abplanalp, when taken together, do not render obvious the claims of the Subject Application.

It is respectfully submitted that one of ordinary skill in the art would not modify the cited references to arrive at the claims of the subject invention, and any assertion to the contrary amounts to mere conclusory statements and do not possess a rational underpinning to support a legal conclusion of obviousness. *See Ex Parte Linzer*, Appeal 2009-001858, *6 (BPAI May 28, 2010) (citing *In re Kahn*, 441 F.3d 977, 998 (Fed. Cir. 2006), quoted in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)). Rather, combining the teachings of Lubsen and Abplanalp to render obvious claims 1, 2-6, 8-10, 13-15, 17-19, and 21-24 would be based on impermissible hindsight because the knowledge of fractionation of a liquid into a mixed gas-and-liquid fluid in a manner recited in the claims would be gleaned from Applicant's disclosure, not Lubsen as evidenced by Abplanalp.

Accordingly, withdrawal of the rejection of claims 1, 3-6, 8-10, 13-15, 17-19, and 21-24 in view of the teachings of Lubsen and Abplanalp is respectfully requested.

C. Rejection of Claims 11, 12, and 20 under 35 U.S.C. § 103(a)

Claims 11, 12, and 20 stand rejected under 35 USC § 103(a) as being obvious over Lubsen in view of Abplanalp and further in view of FR 2,487,782 to Wanson et al. ("Wanson"). This rejection is respectfully traversed.

Wanson is only cited for its teaching a third fractionation of the liquid. For the reasons provided above in *Section B*, the combined teachings of Lubsen and Abplanalp are clearly distinct from the recitation of either of independent claims 1 and 17, from which claims 11, 12, and 20 depend. Accordingly, claims 11, 12, and 20 which further define embodiments of the invention, are believed to be patentable at least for depending from an allowable independent claim.

Accordingly, withdrawal of the rejection to claims 11, 12, and 20 under 35 USC § 103(a) as being obvious over the combined teachings of Lubsen, Abplanalp, and Wanson is respectfully requested.

CONCLUSION

Applicant respectfully submits that claims 1, 3-6, 8-15, 17-24 recite a novel and non-obvious nozzle, apparatus, or method for spraying a liquid into the atmosphere. Applicant believes that these claims define over the prior art of record and are in proper form for allowance. Accordingly, allowance of all claims 1, 3-6, 8-15, and 17-24 at an early date is earnestly solicited.

Applicant does not otherwise concede, however, the correctness of the rejections with respect to any of the newly added dependent claims not discussed above. Accordingly, Applicant hereby reserves the right to make additional arguments as may be necessary to further distinguish the dependent claims from the cited references based on additional features contained in the dependent claims that were not discussed above. A detailed discussion of these differences is believed to be unnecessary at this time in view of the differences in the claims discussed herein.

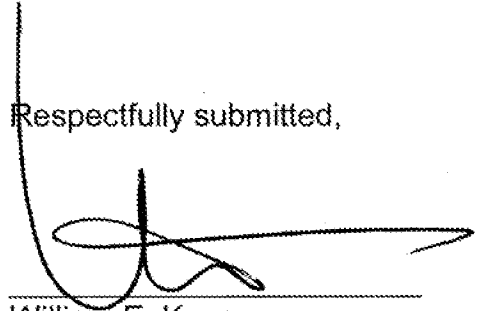
Applicant submits that the Commissioner is hereby authorized to charge any additionally required fees deemed necessary for consideration of this Response to Account No. 11-1110.

Applicant's present Response should not be taken as acquiescence to any of the specific rejections, assertions, statements, etc., presented in the Office Action that Applicant has not explicitly addressed herein. Applicant reserves the right to specifically address all such rejections, assertions, and statements in continuing applications, subsequent responses, and/or appeal or pre-appeal proceedings.

If the undersigned can be of assistance to the Examiner in addressing any additional issues to advance the application to allowance, please contact the undersigned at the number set forth below.

August 30, 2011
Date

Respectfully submitted,



William E. Kuss
Registration No. 41,919

K&L GATES LLP
K&L Gates Center
210 Sixth Avenue
Pittsburgh, Pennsylvania 15222-2613

Tel: (412) 355-6323